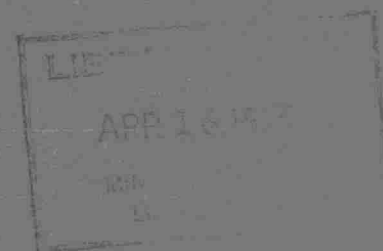


OPERATING SUMMARY



**STRATFORD**

WATER POLLUTION CONTROL PLANT

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Ontario

MINISTRY OF THE ENVIRONMENT

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ASSISTANT DEPUTY MINISTER  
REGIONAL OPERATIONS  
J. Barr

REGIONAL OPERATIONS DIVISION

DIRECTOR, SOUTHWESTERN REGION  
D. McTavish

MANAGER, UTILITY OPERATIONS  
A. Ladbrooke

STRATFORD  
WATER POLLUTION CONTROL PLANT

operated for  
THE CITY OF STRATFORD  
by the  
MINISTRY OF THE ENVIRONMENT

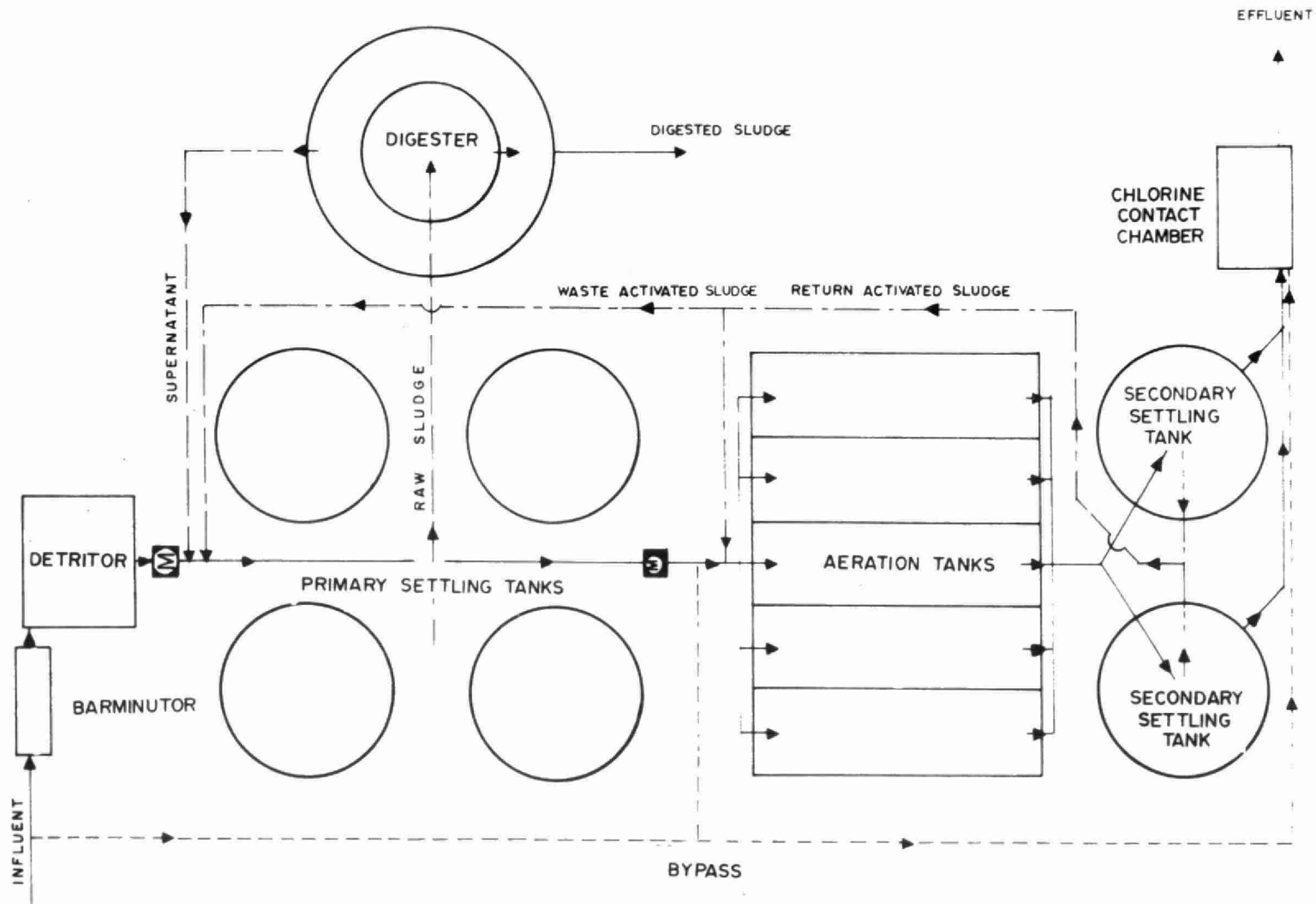
1973 ANNUAL OPERATING SUMMARY

prepared by  
Plant Performance Unit  
TECHNICAL SERVICES BRANCH  
T. Cross, Director

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# CITY OF STRATFORD WPCP



# DESIGN DATA

PROJECT City of Stratford WPCP

PROJECT NO. 2-0002-57

TREATMENT Activated Sludge

DESIGN FLOW 6.0 mgd

DESIGN POPULATION 30,000

BOD - Raw Sewage 140 mg/l  
- Removal 90%

SS - Raw Sewage 250 mg/l  
- Removal 95%

## PRIMARY TREATMENT

### Comminution

Type: Barminutor  
Size: One Model C (36")

### Grit Removal

Type: Dorr detritor  
Size: One 20' x 20' x 1' (2500 gal)  
Retention: 0.9 min

### Primary Sedimentation

Type: Infilco  
Size: Four 80' dia x 10½' swd (1.32 mil gal)  
NOTE: Two used for storm flows only  
Retention: 2.7 hr (2 cl)  
Loading: Surface, 600 gal/ft<sup>2</sup>/day  
Weir, 12,000 gal/ft/day

## SECONDARY TREATMENT

### Aeration Tanks

Type: Diffused air; triple-pass  
Size: Five 85½' x 25' 8" (avg) x 13' (0.97 mil gal)  
Retention: 3.9 hr

### Diffusers

Type: Activated Sludge Ltd.  
Alundum Domes

### Air Supply

Type: Roots-Connorsville  
Size: Three 1750 cfm

## Secondary Sedimentation

Type: Infilco  
Size: Two 80' dia x 11' 3' swd (0.705 mil gal)  
Retention: 2.7 hr  
Loading: Surface, 600 gal/ft<sup>2</sup>/day  
Weir, 12,000 gal/ft/day

## CHLORINATION

### Chlorine Contact Chamber

Size: 67' x 27' x 8' (90,000 gal)  
Retention: 22 min

### Chlorinator

One F & P 500 lb/day

## OUTFALL

Avon River

## SLUDGE HANDLING

Digestion System - Heated, two-stage

Type: Gas mixed  
Size: One 73' dia x 26' swd (100,00 cu ft or 0.624 mil gal)

### Primary Stage (inner)

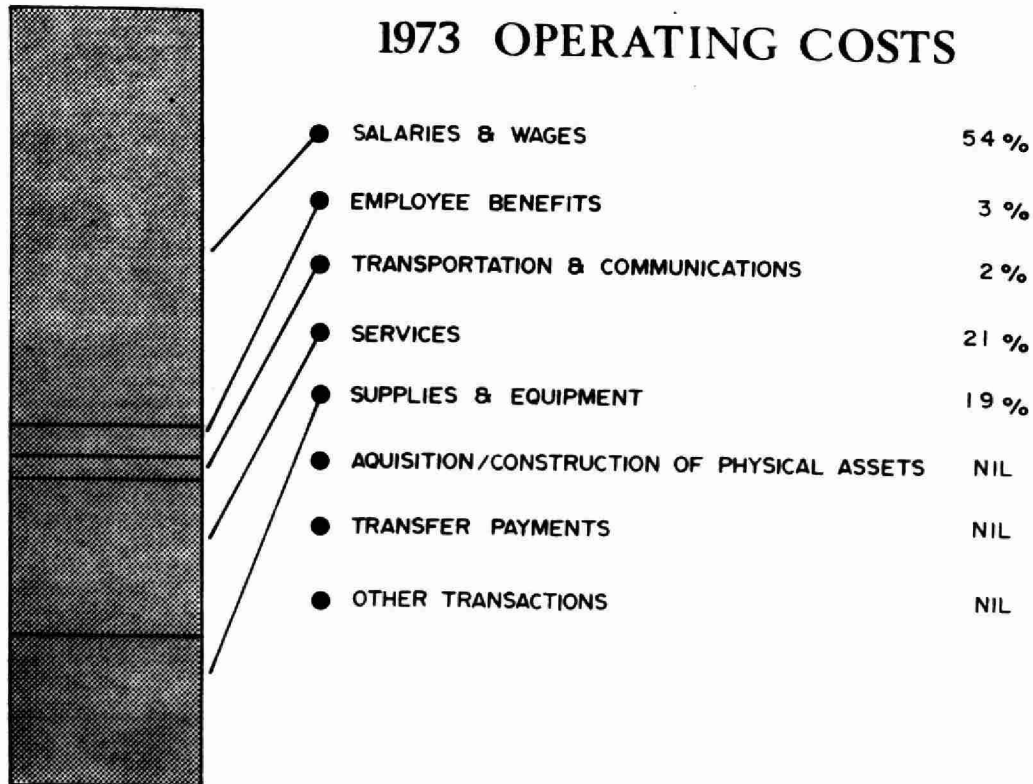
Size: 67,600 cu ft  
Loading: 2.8 lb/cu ft/mo

### Secondary Stage (outer ring)

Size: 32,400 cu ft  
Total Loading: 1.9 lb/cu ft/mo

# ANNUAL COSTS

## 1973 OPERATING COSTS



## YEARLY OPERATING COSTS

YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS	
			\$/M.G.	¢/lb BOD
1968	1232	\$ 69,371	56	2
1969	1322	75,996	57	6
1970	1178	80,123	68	4
1971	1168	86,609	73	9
1972	1314	88,838	68	7
1973	1305	108,329	83	4

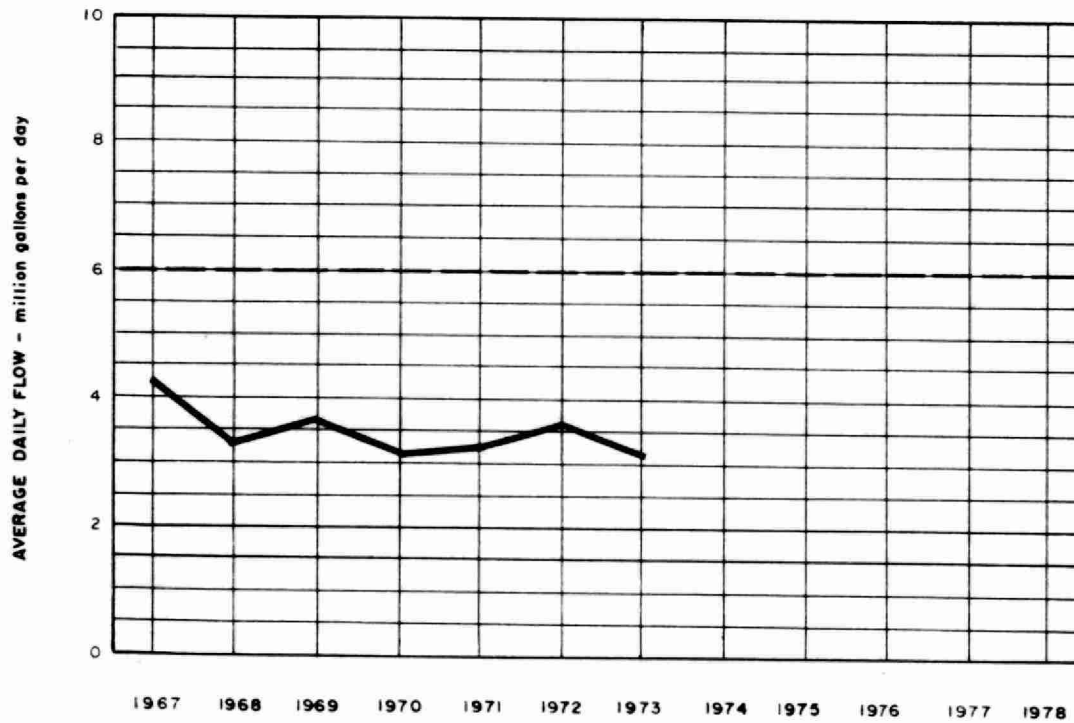
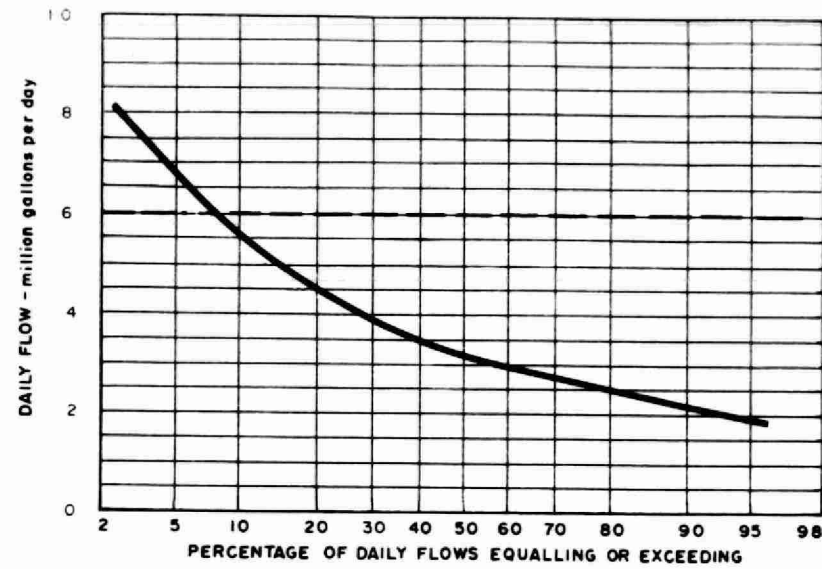
## OPERATING EXPENDITURES

SALARIES AND WAGES	<u>\$59,015</u>
EMPLOYEE BENEFITS	<u>3,473</u>
TRANSPORTATION & COMMUNICATIONS	<u>2,371</u>
SERVICES	<u>22,905</u>
SUPPLIES AND EQUIPMENT	<u>20,565</u>
ACQUISITION/CONSTRUCTION OF PHYSICAL ASSETS	<u>0</u>
TRANSFER PAYMENTS	<u>0</u>
OTHER TRANSACTIONS	<u>0</u>
TOTAL	<u>\$108,329</u>



# PROCESS DATA

# FLows

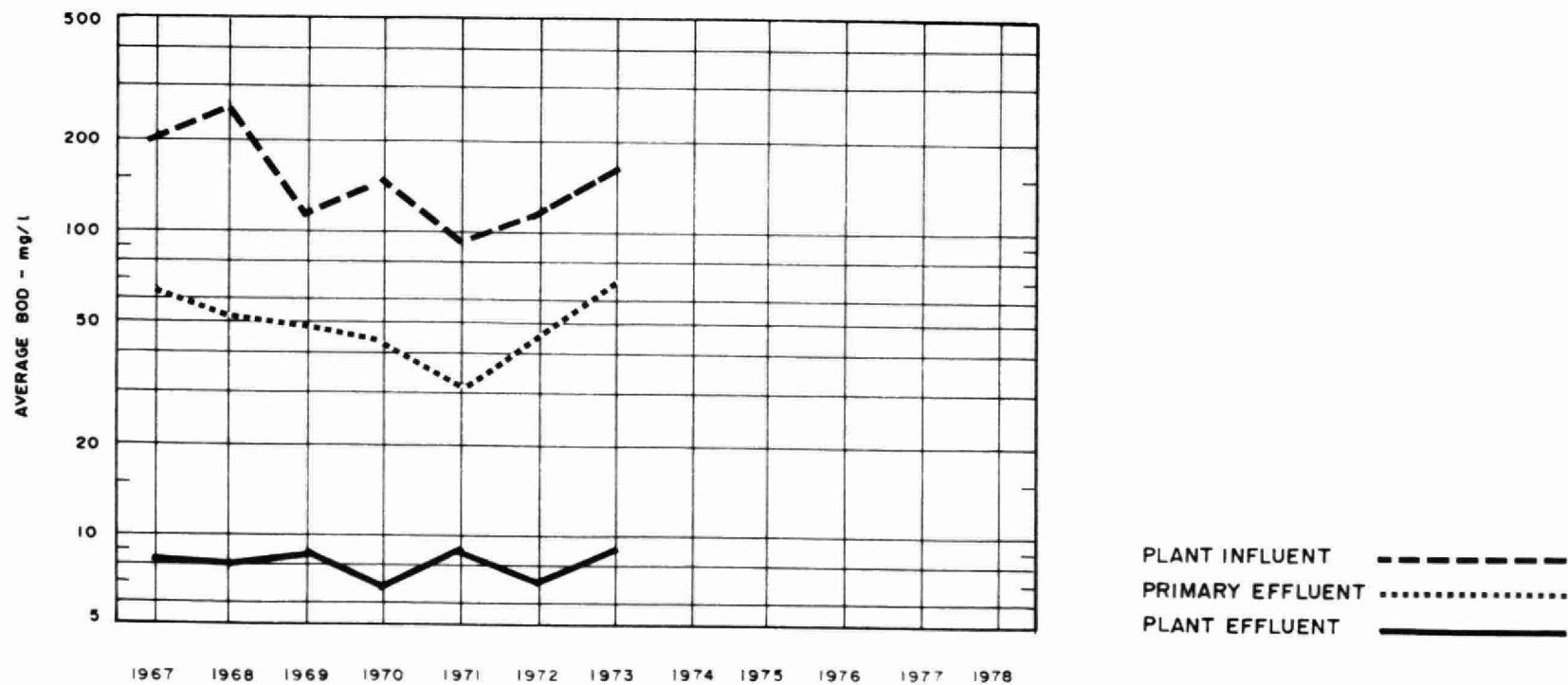
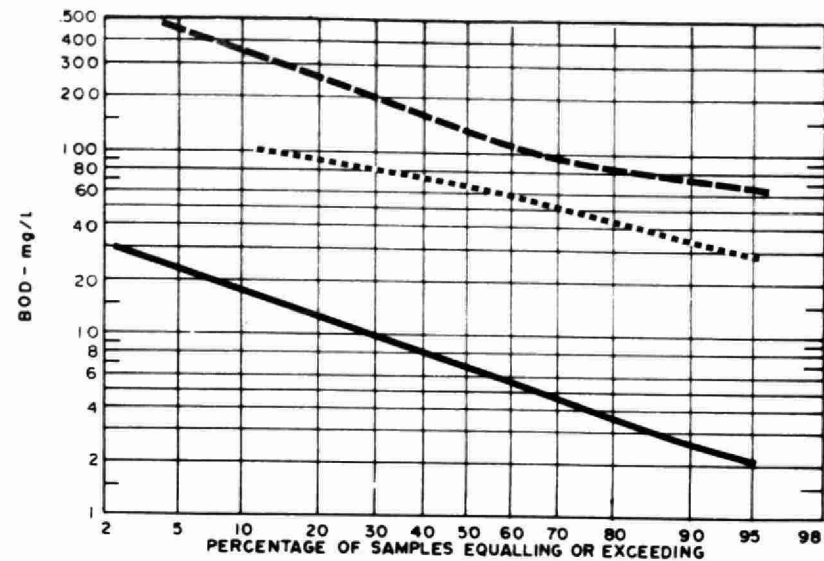


DESIGN CAPACITY - - - - -

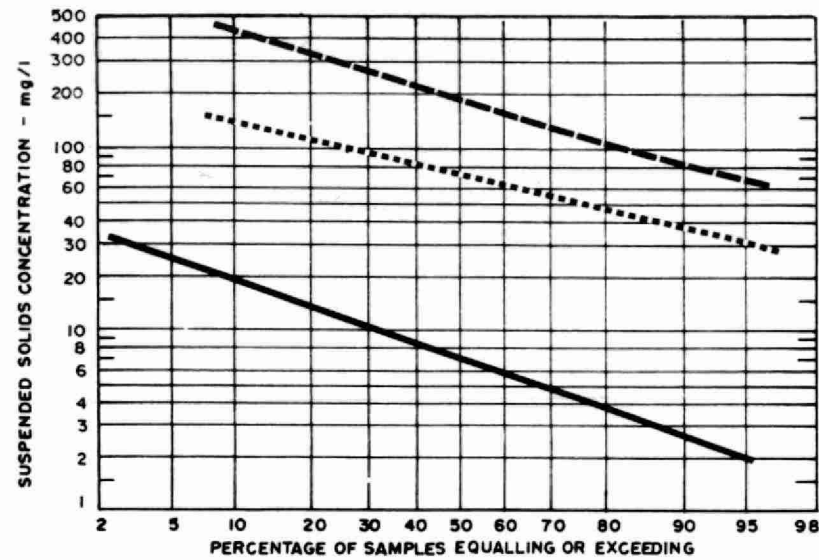
## PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l P	EFFLUENT mg/l P
						%	10 <sup>3</sup> pounds			%	10 <sup>3</sup> pounds		
JAN	130.5	4.21	8.7	97	5	95	124	151	5	97	190	8.7	2.8
FEB	86.9	3.10	9.2	95	6	94	77	171	11	94	139	7.6	4.3
MAR	199.0	6.42	11.3	247	2	99	488	253	21	92	462	5.8	2.1
APR	123.1	4.10	6.5	155	6	96	183	186	19	90	205	4.4	3.4
MAY	125.7	4.05	6.5	136	8	94	161	131	8	94	155	5.1	3.6
JUNE	93.1	3.11	6.3	91	6	93	79	179	2	99	165	7.3	3.8
JULY	76.7	2.55	3.5	142	7	95	103	164	5	97	122	5.5	5.1
AUG	77.0	2.48	4.6	255	25	90	177	466	4	99	356	17.0	3.6
SEPT	74.1	2.47	4.8	293	8	97	211	331	6	98	241	10.2	3.1
OCT	98.5	3.18	5.4	337	6	98	326	503	12	98	484	13.5	5.1
NOV	118.2	3.94	8.8	117	7	94	130	175	12	93	193	5.7	3.2
DEC	101.8	3.28	7.3	210	9	96	205	264	9	97	260	9.0	4.4
TOTAL	1304.6	-	-	-	-	-	2564	-	-	-	2972	-	-
AVG.		3.60	MAXIMUM 11.3	168	8	95	214	244	10	96	248	8.4	3.6
No. of Samples	-	-	-	45	42	-	-	79	54	-	-	26	25

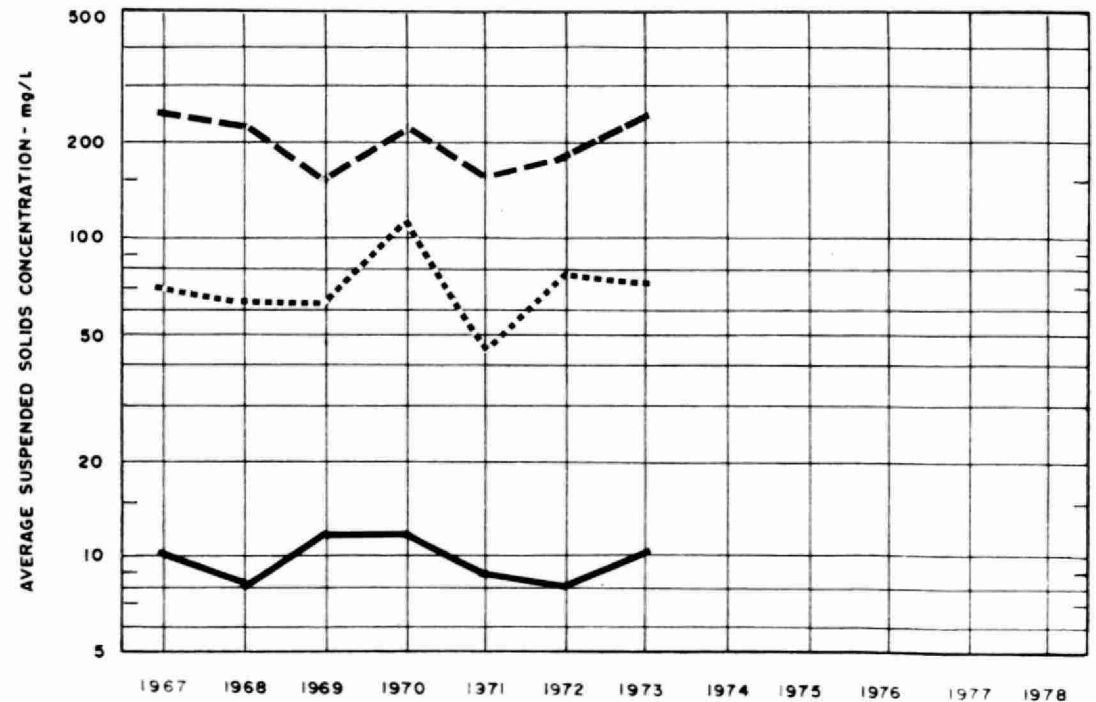
# BIOCHEMICAL OXYGEN DEMAND



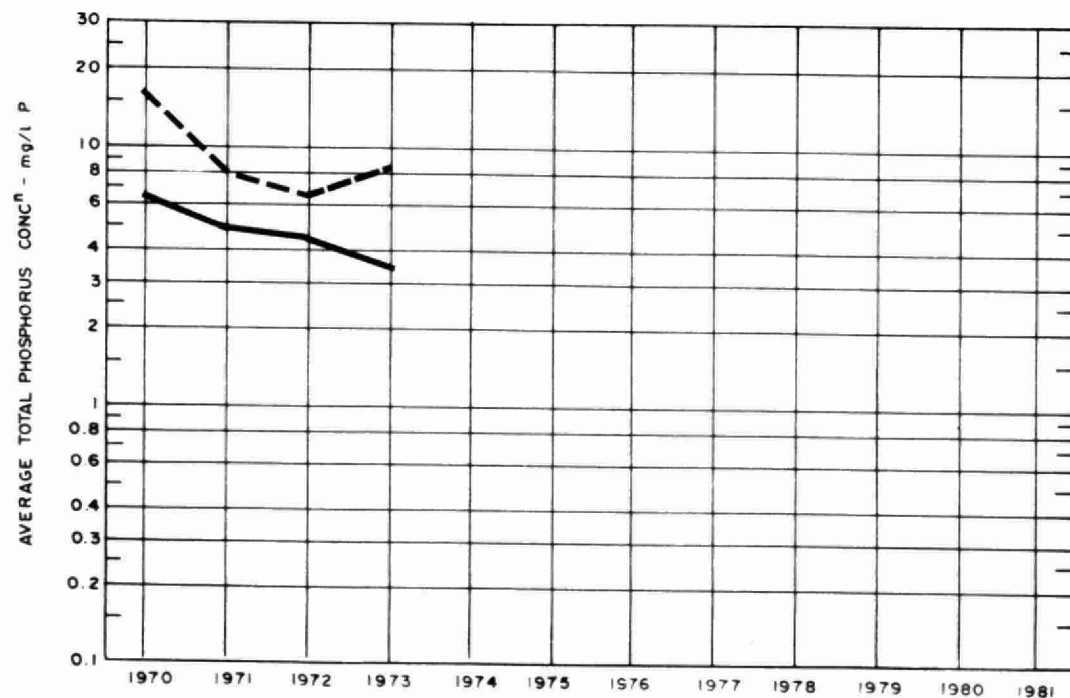
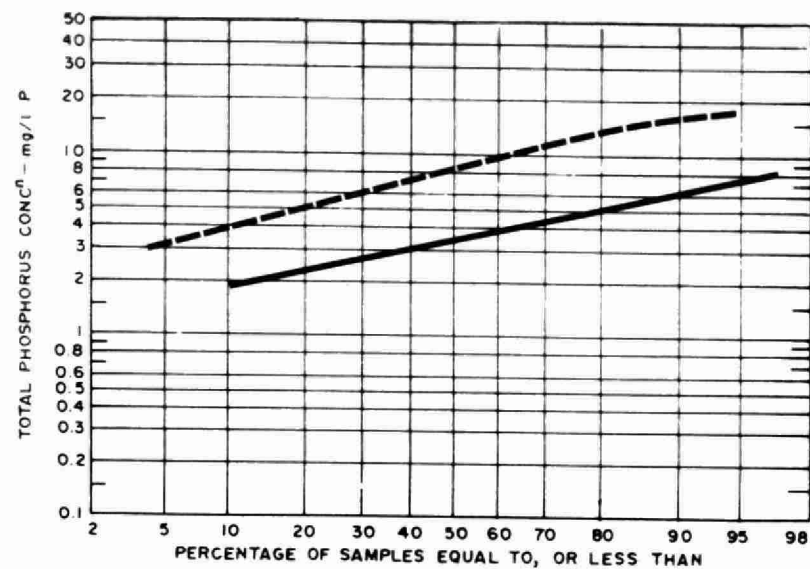
# SUSPENDED SOLIDS



PLANT INFLUENT      - - - - -  
 PRIMARY EFFLUENT      . . . . .  
 PLANT EFFLUENT      ———



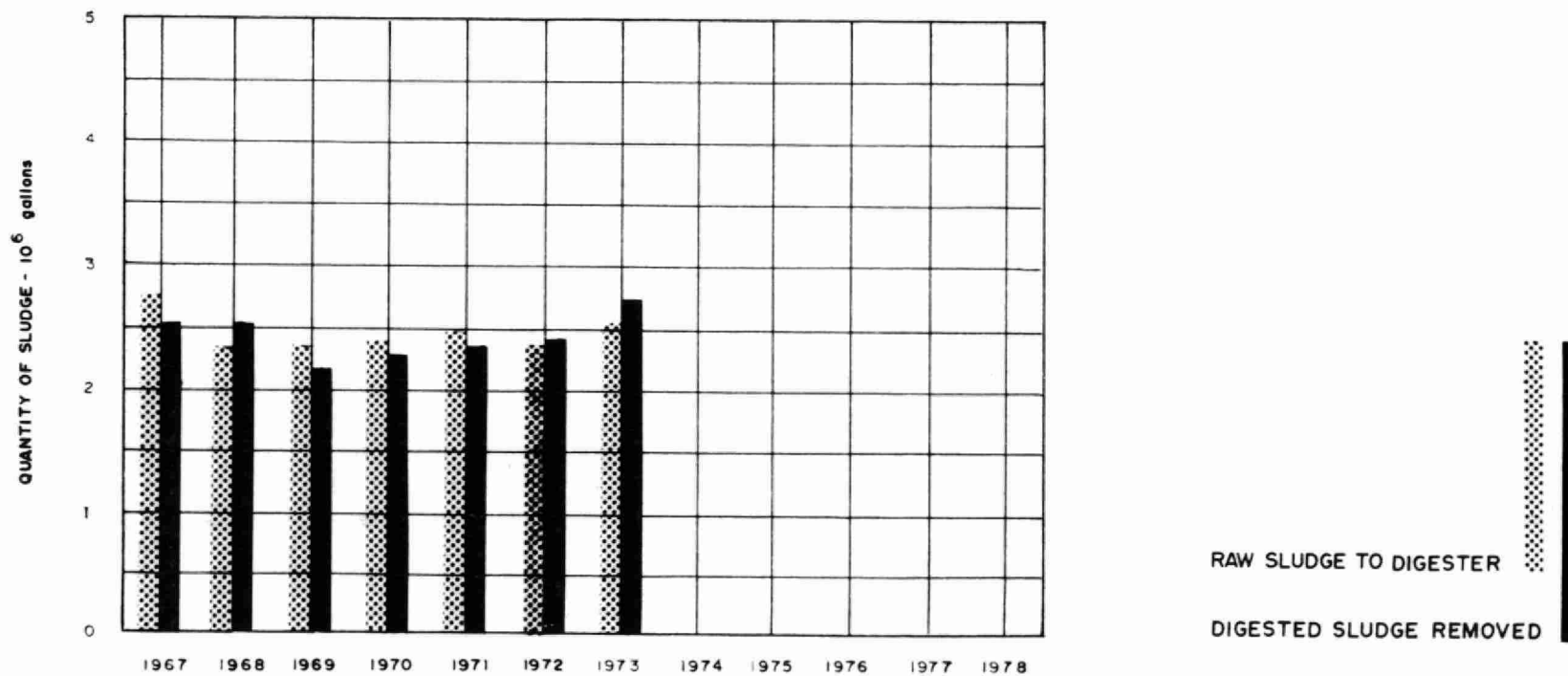
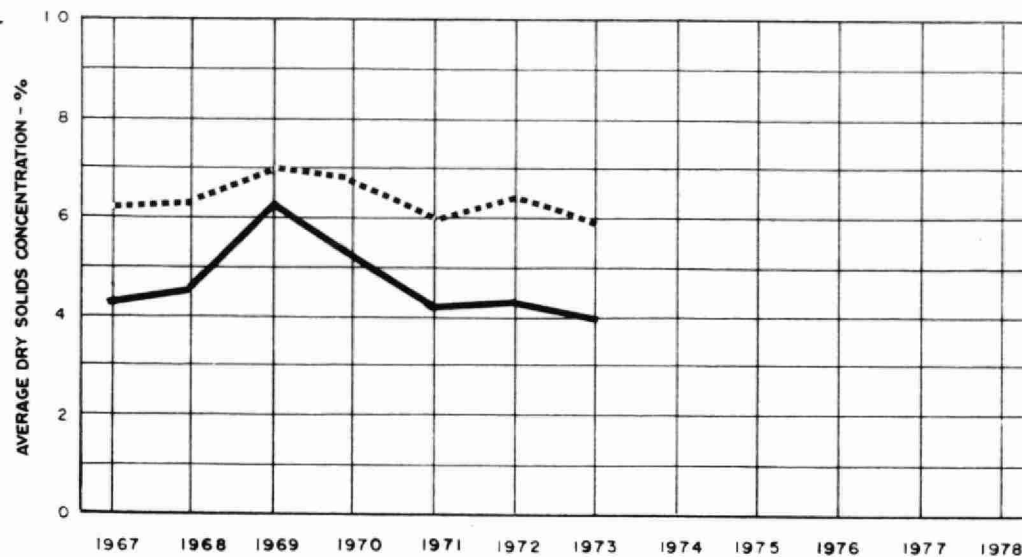
# PHOSPHORUS



PLANT INFLUENT -----  
PLANT EFFLUENT —————

# DIGESTION

RAW SLUDGE .....  
DIGESTED SLUDGE ———



## TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
	QUANTITY REMOVED cubic feet	CL <sub>2</sub> USED 10 <sup>3</sup> pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day <sup>-1</sup>	AIR 1000 ft <sup>3</sup> lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER- NATANT T. S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 <sup>3</sup> gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10 <sup>3</sup> gallons	TOTAL SOLIDS %	VOL. SOLIDS %		
JAN	41	4.2	3.2	84	50	1940	0.19	1.0	184	5.6	69	236	3.7	54		1399
FEB	32	2.4	2.8	49	63	2190	0.07	2.4	187	5.5	71	251	3.8	57		1490
MAR	186	3.1	1.6	44	80	2130	0.14	1.1	212	6.6	68	101	3.8	59		602
APR	8	2.3	1.9	57	60	2210	0.11	1.5	177	6.1	60	209	4.3	55		1242
MAY	29	2.7	2.1	58	85	2240	0.11	1.5	199	5.9	65	222	4.4	50		1316
JUNE	39	2.2	2.4	49	68	2160	0.07	2.2	208	5.4	60	286	4.4	60		1697
JULY	18	2.3	3.0	84	76	2160	0.11	1.6	217	6.1	62	230	4.2	53		1368
AUG	72	2.4	3.2	82	80	2180	0.10	2.4	312	6.1	56	354	4.3	50		2100
SEPT	33	1.8	2.5	93	62	2070	0.12	1.7	212	6.2	63	286	4.1	59		1697
OCT	27	1.9	1.9	91	81	2010	0.15	1.3	198	5.2	66	145	4.0	55		859
NOV	75	2.3	1.9	75	106	2100	0.15	1.4	218	5.5	68	154	3.5	58		912
DEC	17	3.0	2.9	82	86	2170	0.13	1.6	223	5.1	64	236	3.1	54		1403
TOTAL	577	30.6	-	-	-	-	-	-	2547	-	-	2710	-	-	-	16085
AVG.	0.4 cu. ft/mil gal	2.5	2.3	70	75	2130	0.12	1.6	212	5.8	64	226	4.0	55		1340

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